Our Island-Continent: a Naturalist's Holiday in Australia. By Dr. J. E. Taylor, F.L.S. With Map. (London: S.P.C.K., 1886.)

DR. TAYLOR took a trip to Australia for his health, during which he visited South Australia, Victoria, and New South Wales. He has of course scarcely anything new to tell us, though his little book is pleasant reading, and many features of the island-continent are brought out that would only strike a naturalist. Why does Dr. Taylor not state the year of his visit?

The Handy Guide to Norway. By Thomas B. Willson, M.A. (London: Stanford, 1886.)

THIS is a business-like and compact guide which can easily be put into the tourist's pocket, though its price is rather surprising. This is probably due to the fact that it contains many sectional maps, an exceedingly useful feature to the intelligent traveller. The appendix on the Flora and Lepidoptera of Norway, by Dr. R. C. R. Jordan, will prove serviceable to the tourist interested in natural history.

Mountain Ascents in Westmoreland and Cumberland. By John Barrow, F.R.S. (London: Sampson Low and Co., 1886.)

MR. Barrow is an experienced Alpinist, but has a genuine appreciation of the gentler heights of his native land. He has ascended nearly every peak of any consequence in the Lake region, and this volume describes simply and clearly how he did it. The book will be useful as a guide to any who wish to follow Mr. Barrow's example; while the notes on the botany of the district render it of some scientific interest.

An Account of a West Indian Sanatorium, and a Guide to Barbados. By the Rev. J. H. Sutton Moxly. (London: Sampson Low and Co., 1886.)

THIS is a special plea for Barbados as a health resort, and Mr. Moxly adduces many facts in support of his position. The climate is superb, and the great drawback is want of drainage, giving rise to epidemics of typhoid fever. The book is well worth perusal by those in search of a winter-summer. The book will be useful as a guide, though we regret to note the absence of any map.

LETTERS TO THE EDITOR

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.*

[*The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to insure the appearance even of communications containing interesting and novel facts.*]

Fishermen's Foul Water

PERMIT me to call attention to the fact that the small gelatinous masses that annually, about this time, cause the sea-water to become what fishermen call "foul," are now in great abundance on this coast. Their recurrence this year being somewhat later than usual is doubtless owing to the low temperature of May.

On viewing a sample of the water in a glass vessel, the spherical and pyriform masses giving a brownish tinge are readily seen; and a pocket lens makes evident the presence of large specimens of the diatom *Eucampia britannica* that are seen as perfect spirals, some of which have four or five complete turns, and also some filamentous rods. Microscopic examination of the sediment deposited in the course of a few hours enables one to see *Rhizosolenia*, *Asterionella*, and several other diatoms whose names are not known to me.

Respecting the gelatinous bodies, I may remark that they are studded with granules that appear to be nucleated.

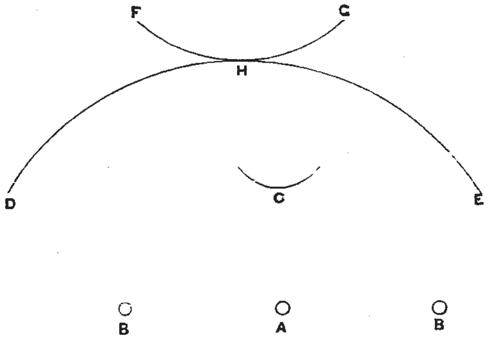
In one of these masses that I have had under observation to-day there has been a gradual segregration of the embedded germs, and this evening these exhibit individual movements which I think indicate the existence of cilia, although with a ¼-inch objective and C eye-piece (the highest power at hand) I cannot distinguish the cilia themselves.

It will be interesting to know how far round our shores at the present time these organisms extend, and I hope, by thus again directing attention to them, that some one more competent than myself will be led to investigate their life-history.

Sheerness W. H. SHRUBSOLE

Solar Halo

AT 6 p.m. this evening I observed an unusual halo and mock suns, a diagram of which is annexed.



A, the sun; B, B, mock suns; C, portion of halo, convex side towards sun; D E, portion of halo, concave side towards sun; F G, portion of halo touching D E at H. Distance—A to B, 22°; A to C, 22°; A to H, 44°.

The sky after having been overcast for the largest portion of the day was at this time fairly clear; very little lower cloud, but a good deal of cirrus. The measurements were observed with a sextant, and were exactly as given, reading the even degree in both cases. T. H. TIZARD

H.M.S. *Triton*, Great Yarmouth, June 21

Ampère's Rule

IN reviewing Mr. L. Cumming's "Electricity Treated Experimentally," "J. T. B." (NATURE, May 27, p. 74) humorously points out how easily students may get confused in trying to make use of "Ampère's rule." There is another rule, published by Pfaundler if I am not mistaken, which is in so far much simpler, as it does not compel the imagination to fancy movements and actions of the human body which it in reality never could perform:—

"Follow the direction of the current in moving the *right* hand along the wire, but holding it so that the stretched fingers are parallel to the wire and the palm is turned towards the north pole of the magnet. The outstretched thumb then gives the direction in which the north pole will be deflected."

Dresden-Striesen, June 12 G. DAEHNE

THE A.O.U. CODE AND CHECK-LIST OF AMERICAN BIRDS

SOME few years since the British Ornithologists' Union appointed a Committee to draw up and publish an authoritative list of the birds of the British Islands. This Committee consisted of the following English ornithologists:—P. L. Sclater (Chairman), Osbert Salvin, F. Du Cane Godman, Henry Seebohm, Howard Saunders, H. E. Dresser, R. Bowdler Sharpe, and H. T. Wharton (Secretary). The Committee held seventy-one meetings, and ultimately a list of British birds was published under the title "A List of British Birds, compiled by a Committee of the British Ornithologists' Union."

Notwithstanding the adverse criticism which has been passed on this little book by a few ornithologists, there can be no doubt that it has supplied a want, and that the high scientific position of many of the members of the Committee invested the publication with a degree of authority worthy of the object of the work in question. Undoubtedly the "List" will bear improvement, and the second edition will perhaps contain not a few modifications, the constitution of the original Committee having necessarily embraced men holding different opinions on the subject of nomenclature and classification. Still, taking the results of their labours as a whole, it seems to us that the work was as well done as could have been expected, and was a well-meant attempt to introduce uniformity into the nomenclature of British birds.

But since the publication of the B.O.U. "List" a complication has arisen through the action of Mr. Henry Seebohm, whose work on British ornithology we have more than once alluded to in this journal. Mr. Seebohm makes short work of nomenclatural difficulties as far as British birds are concerned. Where any doubt arises respecting the oldest published name of a bird, or in cases when obscurity surrounds the meaning of an ancient description, Mr. Seebohm cuts the Gordian knot by taking the general consensus of opinion amongst ornithologists of repute, *i.e.* "*auctorum plurimorum*," and where he finds an actual majority of them have adopted a certain name, then he considers the latter to be the best known, and uses it accordingly. There is a decided advantage about this method. It simplifies matters amazingly, because in such cases as those of the Chiff-chaff, Garden-warbler, and many other familiar birds, the best-known names, *Phylloscopus rufus* and *Sylvia hortensis*, are restored to them, instead of *P. collybita* and *S. salicaria*, which Prof. Newton had shown them to be with more strictness entitled to. It is probable that had a few more years elapsed before Mr. Seebohm published his work, he would have had to modify his nomenclature even while adopting his *auctorum plurimorum* principle. For this reason. There is no ornithologist in this country more looked up to and respected than Prof. Newton, and with good cause. All his work is of the very best, and when he publishes anything, every ornithologist, whether approving his conclusions or not, knows that they are the result of the most careful and deliberate work, on which no time or labour has been spared, and be it an encyclopædia article or a complete work, the student may be sure that he will find the subject worked up in a way that will leave little for him to add. This is our experience of Prof. Newton's work, and it is work which will stand the test of time, for, as long as ornithology is studied, Prof. Newton's publications will always be found to carry the history of his subject down to the time in which he wrote, forming a starting-point for future study. Such being the position of the editor of the fourth edition of Yarrell's "British Birds," it is not surprising to find that his new edition of this standard work was received by ornithologists with respect, and that his nomenclature was at once adopted by the majority of the younger students in this country. Mr. Seebohm's synonymy of British birds shows this over and over again. Then the influence of Mr. Dresser's "Birds of Europe" cannot be under-rated, for he is content to sit at the feet of Prof. Newton, and unhesitatingly adopts his conclusions. Nor could he have done better, for the original work in the "Birds of Europe" is of the poorest quality, and it is as a successful and indefatigable compiler that Mr. Dresser is recognised, viewed in which light there can be no doubt that his work will be considered the work of reference on European ornithology for a long time to come. Thus we have the nomenclature of Prof. Newton, by its adoption in Mr. Dresser's standard work, doubly enforced on the ornithologists of Great Britain, and so followed by them that, as his synonymy shows, Mr. Seebohm would have found that in a few more years it would have been *auctorum plurimorum*, according to his own principles of nomenclature. Prof. Newton adheres faithfully to the rules of the British Association, and one knows, therefore, the principles by which he is guided. Mr. Seebohm differs on many questions from the Association Code, and we have our own ideas as to certain points of nomenclature, our protest being chiefly against men of the Bonapartian school, who take Linnean specific names and make them generic, adding a new specific name of their own. To our mind, Linnean names should be held sacred by zoologists, even if it involves the adoption of the subsequent genus, so that we must admit *Pica pica* or *Crex crex*. The question has been argued over before, and the usual verdict is against the adoption of this mode of nomenclature; but we have not found if unworkable in practice, and indeed it is often convenient, marking out the typical species of the genus. Sufficient has been said in the foregoing remarks to show that there is considerable variability of opinion even amongst British ornithologists with regard to the adaptability ot the Association Code to the requirements of modern science.

But, between the method in vogue in England and that employed by American ornithologists, there has long been great divergence, increasing with years. We have all been looking for some authoritative, *and final*, work on the birds of North America, and it is with pleasure that we have lately received the "A.O.U. Code and Check-List of North American Birds," published by the American Ornithologists' Union. The Committee appointed for the purpose of drawing up this "List" was an excellent one, consisting of Prof. Elliott Coues, Messrs. J. A. Allen, R. Ridgway, W. Brewster, and H. W. Henshaw, while they also received the co-operation of Dr. L. Stejneger, who has made some notable researches into the synonymy of birds during recent years.

The "A.O.U. List of North American Birds" forms a bulky volume of nearly 400 pages. It is divided into five parts: an Introduction (pp. 1–17), in which a history of the subject is given, showing the various efforts of Committees and individual naturalists to systematise the treatment of scientific nomenclature. This is very completely done by the A.O.U. Committee, and with admirable fairness to the labours of their predecessors. Then comes the second section, propounding the "Principles, Canons, and Recommendations" (pp. 18-69), the "Check-List of North American Birds," according to the canons of nomenclature of the American Ornithologists' Union (pp. 71–347),[1] a "Hypothetical List" of recorded North American birds whose status is doubtful (pp. 349-357),[1] and, lastly, a most useful list of the "Fossil Birds of North America" (pp. 359–367).

The introduction calls for no remarks, but it is the "Principles and Canons" of the A.O.U. which will interest the British ornithologist.

In looking through the check-list and comparing the nomenclature used for some of the Palæarctic and Nearctic birds, the ordinary student will be somewhat startled. *Colymbus* is no longer to be retained for the Divers, but for the Grebes, and the Divers become *Urinator*, so that our ordinary Red-throated Diver, familiar as *Colymbus septentrionalis* is now *Urinator lumme*, of the American "List." From this it will be seen that the latter does not simplify existing nomenclature to begin with, and it is the great love of change, which has been so characteristic of recent ornithological work in America, which makes us sceptical as to whether even the authority of the A.O.U. "List" will be sufficient to prevent further modifications in this direction. We remember well how in our younger days we fell into the nomenclatural snare, and how we carried out, as we thought wisely, changes of well-known names in favour of one which had priority of a few years; and in one instance we remember rejecting a well-known name for another because the latter occurred a few pages earlier in the same book. These errors of judgment we have lived to repent, because we find with increasing experience that the study of ornithology presents many phenomena of far deeper interest than the mere search after the oldest name, resulting, as it does too often, in the unearthing of some utterly unknown title, to the confusion of the student. The same principles of nomenclature which we tried to follow in earlier days are those of the A.O.U. now, which result in *Urinator lumme* as the name of the Red-throated Diver. And it is not as if there will be any finality about this nomenclature, for we have seen the treatment of too many monographs to make us believe this. When an ornithologist takes up a group of birds and monographs it, he spends months or even years of study on this particular group, obtains a grasp of his subject, and does his level best to give finality to his work. Does he succeed? Seldom, if ever. We hold it as an absolute canon that the nomenclature of monographs should be followed, unless a definite reason is given why a name should be altered. But, instead of this being done, we find, over and over again, that the author of a small paper or of a faunal list will, by altering generic names and so re-shuffling the specific names, give a totally different aspect to birds which have only just before been carefully monographed with a hope of finality in their nomenclature. So will it probably be with the A.O.U. "List," when some ornithologist in America will rise up and (as we expect to see before long) declare the trinomial system unworkable or the nomenclature of the "List" too complicated, and will re-shuffle the names, and attain temporary renown.

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[1] By some mistake the pages in the Table of Contents referring to these two sections are not correctly given (p. viii.).

We think, however, that, now that the two leading Ornithological Societies of England and America have spoken with authority on the subject of the nomenclature of the birds of their respective countries, the British Ornithologists' Union should endeavour, if possible, to confer with the sister Society in America, and see if a common ground of agreement cannot be arrived at. If these two bodies came to a settlement, the whole matter could be laid before an Ornithological Congress, and there would be some hope of unanimity for the future. The points of divergence in practice between English and American ornithologists are less than might be supposed. The two principal ones are the adoption by the A.O.U. of the 10th edition of Linnæus's "Systema Naturæ" instead of the 12th edition, and the employment of trinomial nomenclature. So many English ornithologists are now using the latter mode that there ought to be no difficulty in conceding the latter point if any ornithologist like the method. Formulated as it is in the A.O.U. "Code," there is no difficulty in understanding what is meant by the trinomial titles, and the American Committee have given a clear definition of their object in Canon XI., though the difficulties which have been pointed out on this side of the water are still not disposed of. "In a word, intergradation is the touchstone of trinomialism. It is also obvious that, the larger the series of specimens handled, the more likely is intergradation between forms supposed to be distinct to be established, if it exists." So says the canon above quoted; but, we would ask, if two forms absolutely intergrade, why are they not of the same species? and why will not a binomial title be sufficient? and again, what name is to be given to the specimens collected at the point of contact? Or again, if a larger series of specimens proves that two species do not intergrade, as they were at first supposed to do, then they will each once more bear a separate specific name. Further, are trinomials to be used for insular forms, as is done by Mr. Allen for *Loxigilla noctis sclateri* from Santa Lucia, as there is no chance of intergradation between it and *L. noctis* from the neighbouring islands? Trinomial nomenclature has, however, taken such a place in American ornithology, and is adopted by so many naturalists in the Old World, that the principle must be conceded to all who like to avail themselves of it. The question with regard to the tenth edition of Linnæus's "Systema" might also be got over, but the A.O.U. will have greater difficulty in convincing European naturalists that it is advantageous to the progress of ornithological science to alter established nomenclature by introducing *Chelidon* as the generic name for the Chimney-swallow instead of the feather-legged Martins, which are to be henceforth *Hirundo*. This radical change is to be adopted in homage to Forster's "List of British Birds," a mere list of names without a character for a single genus. Although similar lists have sometimes been accepted for specific names, their recognition in the case of genera is rare, although in many instances long-established usage has rendered some of them familiar.

The few objections which we have made above must not be supposed to lessen our respect for the general tenour of the work now issued by our American *confrères*, whose labours deserve our most careful consideration, while it cannot be doubted that the publication of this "Code and Check-List" will have great influence on the future of zoological nomenclature.

R. BOWDLER SHARPE

PROFESSOR NEWCOMB'S DETERMINATION OF THE VELOCITY OF LIGHT[1]

THE method selected for the important experiments described in the present memoir,[2] is that known as Foucault's. The idea fundamental to it is that of the determination of the interval occupied by light in flashing from a revolving to a fixed mirror and back, by the amount of deviation produced in its return path through the change meantime effected in the position of the revolving mirror. The angle of deviation of the ray is double the angle of displacement of the reflector; to this angle corresponds (since the mirror rotates at a known rate) a definite fraction of a second, which is the time of luminous transmission across twice the measured distance between the mirrors.

But this theoretically simple means of ascertaining the velocity of light is complicated, in practice, with innumerable difficulties. A choice demanding the utmost nicety of judgment must be made between various conflicting conditions; sacrifice in one direction is the price of advantage in another; a balance has to be struck, giving the largest sum-total of facilities, with the fewest and least intractable drawbacks. The plan finally decided upon by Prof. Newcomb was the result of much anxious deliberation: we hope to render it, in its main outlines, intelligible to our readers.

A fundamental condition of the problem is to get an image of the light-source absolutely coincident with the light-source itself, *so long as the movable mirror is at rest.* And this, whatever be the position the mirror is at rest in, provided only that it be such as to permit the rays sent out by it to return, after due triple reflection, to the eye. This requisite is secured by locating the centre of curvature of the distant concave mirror in the axis of the revolving plane one. All rays emitted from this point towards the former will return along the same paths; differences of direction due to differing positions of the movable mirror will be eliminated by the return reflection; and there ensues a "stationary image" of the light-source, occupying, when visible at all, an invariable situation.

So far, all the operators by Foucault's method have been unanimous; but in the placing of the lens indispensable for the management and concentration of the light employed, a material distinction obtained between the

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[1] "Measures of the Velocity of Light made under direction of the Secretary of the Navy during the years 1880–82," by Simon Newcomb, Professor, U.S. Navy. Astronomical Papers prepared for the use of the American Ephemeris and Nautical Almanac, vol. ii. parts iii. and iv. (Washington: Bureau of Navigation, 1885.)

[2] For the historical notice serving as an introduction to it, see NATURE, May 13, p. 29.